ATTACHMENT 8.1

Location Studies

The consultant shall develop a project concept and drawings. The project concept shall be developed in accordance with the Department's Plan Development Process and "Project Concepts," which are attached and made a part of this Work Order. This work shall be performed using English units.

Scope of Work

Phase I – Concept Development

The Consultant shall develop a project concept by providing the following services:

1. Kickoff Meeting - The Project Manager, Lead Design Engineer and Environmental Project Manager will attend a kickoff meeting with the Department to define the project scope.

2. Pre-Concept Team Meeting – Meet with key representatives (in accordance with GDOT's Plan Development Process) to validate the project Need and Purpose; gain a better understanding of the project corridor; understand the environmental scope; determine the anticipated public involvement approach; identify information that is available; define information that is needed to develop the concept, and review the project schedule.
   a. Prepare presentation for and attend Pre-Concept Team Meeting, and provide appropriate presentation graphics (aerial photography). Prepare Pre-Concept Team Meeting minutes.
   b. Evaluate and begin project development in accordance with GDOT and other team participant comments.

3. Site Visits - Make visits to the project site to become familiar with significant features that will impact the project concept.

4. Tax Map and Property Owner Research - Gather information at County courthouse.

5. Old Plans – Gather old highway plans from GDOT showing existing features, such as horizontal and vertical alignment, of major roadways to be improved or intersected.

6. Develop Design Traffic Projections for the proposed corridor roadway network:
   a. Review GDOT coverage counts and plan data collection requirements
   b. Coordinate traffic count data collection
      (1) Key Intersection Turning Movement Counts – Perform intersection turning movement counts of cars, trucks and pedestrians from 6:30 to 8:30 a.m. and 4:30 to 6:30 p.m. at key intersections, as determined by GDOT, along the project corridor.

(1) Bi-directional 24-hour machine volume counts on project mainline and all significant side roads, as determined by GDOT, with 15 minute and hourly tabulations.
(2) Bi-directional 24-hour machine vehicle classifications counts on project mainline with 15 minute and hourly tabulations.

c. Design traffic site visit (1)
d. Review count data
e. Determine existing ADT for roads in study area
f. Determine 24 hour and design hour truck percentage for project mainline
g. Linear regression analysis at necessary locations
h. Request open year and design year travel demand model projections from GDOT Office of Planning for Build and No Build. Analyze output.
i. Determine existing peak hour turning movement volumes – AM and PM
j. Determine open year and design year ADT – Build and No Build
k. Determine open year design hour volumes – Build and No Build
l. Determine design year design hour volumes – Build and No Build
m. Design traffic diagrams
n. QC Review
o. Coordination meeting with GDOT OEL (1)
p. Prepare memorandum with backup documentation – one (1) copy to OEL

7. Traffic Study
   a. Accident Data Analysis - Evaluate accident history to identify correctable accident patterns.
   b. Existing Capacity Analysis - Analyze existing (2001 AM and PM peak hour volumes and open year DHV) capacity/level of service of key intersections on project mainline for AM and PM peak hours.
   c. Proposed Capacity Analysis - Analyze the capacity/level of service of the design year AM and PM DHVs for top alternatives (based on recommended improvements) and the No Build alternative at key intersections on project mainline inside the project corridor.
   d. Report - Summarize the results of the operational analysis and recommendations. Determine the number of years this project is expected to operate at level of service D or better.

8. Identify Preliminary Alternatives for Environmental Screening
   a. Identify multiple alternatives that satisfy the need and purpose of the project, and minimize impacts and disruption to the human and natural environmental resources within the project area.
   b. Prepare preliminary conceptual layout (using MicroStation/Descartes) of potential alignments, drawn in color on digital photography, to assist in environmental screening.

9. Environmental Screening – The survey area will be the preliminary alternatives or project corridor as designated by GDOT for the proposed project.
   a. An Environmental Scientist will delineate in the field, and map on aerial photos, the extent of jurisdictional wetlands, non-wetland waters of the United States and protected species habitats.
   b. A compliance-level history survey will be performed to provide boundaries, mapped on aerial photos, for National Register eligible historic resources as concurred by Georgia DNR.
   c. A preliminary archaeology survey will be performed to delineate, and map on aerial photos, cemetery boundaries and high probability areas for National Register eligible archaeology resources. In addition, the Georgia Archaeological Site Files in Athens shall be consulted to determine if previously recorded archaeological sites are located within the proposed corridor.

d. A windshield survey will be performed of potential UST's, hazardous waste sites, 4(f) resources and other community issues including environmental justice. A Windshield Survey Report with graphics will be prepared summarizing findings.
e. Coordination with OEL.
f. Consultant environmental representatives will attend and participate in PAR meeting.
g. Consultant environmental representatives will attend and participate in Concept Team meeting.

10. Develop Alternatives based on results of Environmental Screening
    a. Prepare preliminary conceptual layout of potential alternatives to be drawn in color on digital photography.
    b. Significant environmental findings, such as eligible historic resources, wetlands, streams and protected species habitats, will be delineated on the conceptual layout.
    c. The conceptual layout will indicate (at a minimum) the proposed centerline, proposed pavement, existing and proposed right-of-way, approximate construction limits, and proposed bridges.
    d. Conceptual alignments will be based on (1) speed design in accordance with AASHTO and GDOT guidelines; (2) avoidance or minimization of environmental impacts; (3) avoidance or minimization of social impacts; and (4) preliminary costs including construction, right-of-way and utility relocations.
    e. A Location Study Report (example provided) displaying a comparison of vital alternative information and impacts will be prepared to determine the preferred ("best fit") alternative.

11. PAR process
    a. Prepare a Practical Alternative Report (example provided), with associated graphics and layouts, comparing the impacts of the preferred ("best fit") alternative to an alternative that has the sole purpose of avoidance and minimization of jurisdictional wetlands and non-wetland waters of the United States.
    b. Attend PAR meeting with federal resource agencies; analyze comments; and prepare appropriate responses to comments received from resource agencies associated to the PAR.

12. Concept Development
    a. Determine which concept will be included in the concept report and plans.
    b. Prepare a color conceptual layout on digital photography for one recommended alternative. Significant environmental findings, such as eligible historic resources, wetlands, streams and protected species habitats, will be delineated on the concept plans.
    c. Prepare Project Design Data Book containing the roadway classification, general configuration, design speed, design criteria, intersection sketches, traffic study, clear zone requirements, drainage criteria, environmental overview, typical sections and known utility owners.
    d. Prepare draft concept report, in GDOT format, and submit to GDOT for review and attachment to concept meeting invitations.
    e. Prepare presentation for and attend Concept Team Meeting, and provide appropriate presentation graphics. Prepare Concept Team Meeting minutes.
    f. Evaluate and revise conceptual layout in accordance with GDOT and other team participant comments.
    g. Estimate project costs for final concept. Costs will include construction, right-of-way, and utility relocations.
    h. Develop final concept report, in GDOT format, and submit to GDOT for review and submittal to management for approval.

13. Concept Revisions (if necessary)
    a. Revise conceptual layout, as needed, in accordance with updated information and GDOT comments.
    b. Prepare revised concept report, in GDOT format, and submit to GDOT for review and submittal to management for approval.
    c. Prepare and submit notification of revision to all internal and external GDOT customers, as necessary.

14. Public Information Meeting/Public Hearing – Prepare handouts. Provide presentation graphics. Attend Dry Run. Attend Public Information Meeting/Public Hearing. Analyze comments. Prepare appropriate response letters to comments received during the PIM/PH.

15. Management Approval of Final Concept (if needed)
    a. Prepare Final Alternative Selection Report, in GDOT format, and submit to GDOT for review and submittal to management for approval.

16. Transmittal of Final Concept
    a. Set final concept centerline (with coordinates) on mapping to be used for development of right-of-way and construction plans.
    b. Provide electronic, coordinated centerline to GDOT Design Office, District Office, and Engineering Management Group.
    c. Transmit copies of final concept to GDOT Environmental, District, and Design office.

17. GDOT Review Meetings (as necessary) - Attend meetings with GDOT Project Manager and other GDOT staff (a) after determining preliminary alternatives, (b) after completion of traffic study, (c) after completion of Practical Alternative Report, and (d) after completion of draft/final Concept Report.

18. Project Management and Administration – The Project Manager will develop the scope and monitor changes, communicate with the consultant project team and GDOT, provide internal cost accounting, and foster quality assurance. The Project Manager will attend all meetings and include other personnel as needed.

DELIVERABLES

The following items shall be delivered to the Department:

1. Design Traffic Projections

2. Traffic Study

3. Summary of Environmental Screening with boundaries

4. Location Study Report and conceptual layout

5. Practical Alternative Report and conceptual layout

6. Final Alternative on conceptual layout indicating all known existing information, and the existing and proposed roadways and right of ways

7. Concept Reports – Draft; Final; and Revised (if necessary)

8. Project Design Data Book

9. Public Information Meeting/Public Hearing handouts, graphics, comment summary, and response letters

10. Final Alternative Selection Report (if necessary)

11. Electronic, coordinated centerline of final concept

12. Electronic final concept and associated files - HMR and DGN